U.S., and was published in English as WO 98 27995 on July 2, 1998, claiming priority to U.S. Provisional Application 60 033,145, filed on December 20, 1996.

Please replace the 3rd full paragraph of page 10 with the following paragraph:

Figure 1. Panels A through L (Fig. 1A-1L) of this figure are a tabular alignment of the amino acid sequences of various naturally occurring morphogens with a preferred reference sequence of human OP1, residues 38-139 of SEQ ID NO: 4. Morphogen polypeptides shown in this figure also are identified in the Sequence Listing.

The specification presented above incorporate changes as indicated by the marked-up versions below.

The 3rd full paragraph of page 10:

Figure 1. Panels ~~1-1 through 1-12~~ A through L (Fig. 1A-1L) of this figure are a tabular alignment of the amino acid sequences of various naturally occurring morphogens with a preferred reference sequence of human OP1, residues 38-139 of SEQ ID NO: 4. Morphogen polypeptides shown in this figure also are identified in the Sequence Listing.

In the claims:

For the convenience of the Examiner, all claims being examined, whether or not amended, are presented below.

1. (**Reiterated**) A method of therapy for a mammal at risk of, or afflicted with, loss of or damage to myocardium, the method comprising implanting a preparation of myogenic precursor cells into said mammal at a site at risk of, or afflicted with, loss of or damage to myocardium, and treating said myogenic precursor cells with an amount of a morphogen sufficient to promote proliferation or differentiation of said myogenic precursor cells into functional myocardium.

5. (**Amended**) The method of claim 1, wherein said myogenic precursor cells are: mammalian skeletal muscle satellite cells, embryonic myogenic precursor cells, or cells of a histocompatible mammalian myogenic precursor cell line.

6. (**Amended**) The method of claim 1, wherein said myogenic precursor cells are autologous skeletal muscle satellite cells.

7. (**Amended**) The method of claim 1, wherein said mammal is afflicted with a condition selected from: myocardial infarction or congestive heart failure.

8. (**Amended**) The method of claim 1, wherein treating said myogenic precursor cells is conducted prior to implanting said preparation of myogenic precursor cells into said mammal.

9. (**Amended**) The method of claim 1, wherein treating said myogenic precursor cells is conducted simultaneously with implanting said preparation of myogenic precursor cells into said mammal.

10. (**Amended**) The method of claim 1, wherein treating said myogenic precursor cells is conducted subsequent to implanting said preparation of myogenic precursor cells into said mammal.

11. (**Amended**) The method of claim 10, wherein treating said myogenic precursor cells is conducted at least once a week for a period of at least four weeks.

12. (**Amended**) The method of claim 10, wherein treating said myogenic precursor cells is conducted at least once a month for a period of at least one year.

13. (**Amended**) The method of claim 1, wherein treating said myogenic precursor cells is conducted with morphogen at a concentration of about 0.01 - 1000 ng/ml.

14. (**Amended**) The method of claim 1, wherein treating said myogenic precursor cells is conducted with morphogen at a concentration of about 0.1 - 100 ng/ml.

15. (**Amended**) A method of promoting proliferation of myogenic precursor cells or differentiation of myogenic precursor cells into functional myocardium, comprising: (a) contacting said cells with a morphogen in an amount effective to induce said proliferation or differentiation; and (b) maintaining said cells in a morphogenically permissive environment.

16. (**Amended**) The method of claim 1, wherein said morphogen is: a pro-form of a morphogen, a soluble form of a morphogen, a mature morphogen, or a C-terminal fragment of a morphogen comprising at least the seven cysteine domain of said morphogen.

17. (**Amended**) The method of claim 1, wherein said morphogen is osteogenic proteins or bone morphogenic proteins.

18. (**Amended**) The method of claim 1, wherein said morphogen induces a cascade of tissue-specific morphogenesis culminating in the formation of functional mammalian myocardium; and comprises a pair of folded polypeptides, the amino acid sequence of each of which comprises a sequence having at least 70% amino acid sequence homology with the C-terminal seven-cysteine domain of human OP-1, mouse OP-1, human OP-2 or mouse OP-2, residues 38-139 of SEQ ID NOs. 5, 6, 7 or 8, respectively.

19. (**Amended**) The method of claim 1, wherein said morphogen is OP- 1, CBMP-2A (BMP-2), or CBMP-2B (BMP-4).

20. (**Reiterated**) A therapeutic composition for promoting the repair or regeneration of mammalian myocardium comprising isolated mammalian myogenic precursor cells, and an amount of a morphogen sufficient to promote proliferation or differentiation of said myogenic precursor cells into functional myocardium in a morphogenically permissive environment.

24. (**Amended**) A method of culturing mammalian myogenic precursor cells, comprising isolating said myogenic precursor cells, and culturing said myogenic precursor cells in a medium comprising an amount of a morphogen sufficient to promote proliferation or

differentiation of said myogenic precursor cells into functional myocardium in a morphogenically permissive environment.

28. (**Amended**) A method of inducing myogenic precursor cells, naturally competent to differentiate into skeletal or smooth muscle, to differentiate into cardio myocytes, said method comprising: (a) contacting said myogenic precursor cells with a morphogen; and (b) maintaining the product of (a) in an environment morphogenically permissive for cardiomyogenesis.

29. (**Amended**) A method of producing replacement cardiomyocytes in a mammal in need thereof, said method comprising implanting into said mammal myogenic precursor cells induced by the method of claim 28.

The claims presented above incorporate changes as indicated by the marked-up versions below.

5. (**Amended**) ~~A~~ The method ~~as in any one~~ of claim~~s~~ 1~~-4~~, wherein said myogenic precursor cells are: ~~selected from the group consisting of~~ mammalian skeletal muscle satellite cells, embryonic myogenic precursor cells, ~~and~~ or cells of a histocompatible mammalian myogenic precursor cell line.

6. (**Amended**) ~~A~~ The method ~~as in any one~~ of claim~~s~~ 1~~-4~~, wherein said myogenic precursor cells are autologous skeletal muscle satellite cells.

7. (**Amended**) ~~A~~ The method ~~as in any one~~ of claim~~s~~ 1~~-4~~, wherein said mammal is afflicted with a condition selected from: ~~the group consisting of~~ myocardial infarction ~~and~~ or congestive heart failure.

8. (**Amended**) ~~A~~ The method ~~as in any one~~ of claim~~s~~ 1~~-4~~, wherein ~~said treatment step~~ treating said myogenic precursor cells is conducted prior to ~~said implantation step~~ implanting said preparation of myogenic precursor cells into said mammal.

9. (**Amended**) ~~A~~ The method ~~as in any one~~ of claim~~s~~ 1~~-4~~, wherein ~~said treatment step~~ treating said myogenic precursor cells is conducted simultaneously with ~~said implantation step~~ implanting said preparation of myogenic precursor cells into said mammal.

10. (**Amended**) ~~A~~ The method ~~as in any one~~ of claims ~~1~~ 1, wherein ~~said treatment step~~ treating said myogenic precursor cells is conducted subsequent to ~~said implantation step~~ implanting said preparation of myogenic precursor cells into said mammal.

11. (**Amended**) ~~A~~ The method ~~as in~~ of claim 10, wherein ~~said treatment step~~ treating said myogenic precursor cells is conducted at least once a week for a period of at least four weeks.

12. (**Amended**) ~~A~~ The method ~~as in~~ of claim 10, wherein ~~said treatment step~~ treating said myogenic precursor cells is conducted at least once a month for a period of at least one year.

13. (**Amended**) ~~A~~ The method ~~as in~~ of claim 1, wherein ~~said morphogen treatment step~~ treating said myogenic precursor cells is conducted with morphogen at a concentration of about 0.01 - 1000 ng/ml.

14. (**Amended**) ~~A~~ The method ~~as in~~ of claim 1, wherein ~~said morphogen treatment step~~ treating said myogenic precursor cells is conducted with morphogen at a concentration of about 0.1 - 100 ng/ml.

15. (**Amended**) A method of promoting proliferation of myogenic precursor cells or differentiation of myogenic precursor cells into functional myocardium, comprising: ~~the steps of~~ (a) contacting said cells with a morphogen in an amount effective to induce said proliferation or differentiation; and (b) maintaining said cells in a morphogenically permissive environment.

16. (**Amended**) ~~A~~ The method ~~as in~~ of claim 1, wherein said morphogen is: ~~selected from the group consisting of~~ a pro-form of a morphogen, a soluble form of a morphogen, a mature morphogen, ~~and~~ or a C-terminal fragment of a morphogen comprising at least the seven cysteine domain of said morphogen.

17. (**Amended**) ~~A~~ The method ~~as in~~ of claim 1, wherein said morphogen is ~~selected from the group consisting of~~ osteogenic proteins ~~and~~ or bone morphogenic proteins.